

NC Response Protocol

```

<response>      :=          <message><eol>

<message>       :=
    <start>|<stop>|<execute>|<getwrk>|<quit>|<error>|<end>|<point>|
    <toolballr>|<toolinfo>

<eol>           :=          <cr><lf>

<start>         :=          <'1'><white><machid><units><progid>
<stop>          :=          <'2'><white><machid>
<execute>       :=          <'3'><white><machid>
<getwrk>        :=          <'4'><white><machid><wrkoffset><x><y><z>
<end>           :=          <'9'><white><machid>
<point>         :=          <'10'><white><machid><featid><index>+
                                <x><y><z><a><b><c>
<toolballr>     :=          <'11'><white><machid><probeid><tipid><effballr>
<toolinfo>      :=          <'12'><white><machid><probeid><tipid>+
                                <offsetx><offsety><offsetz><effballr>
<error>         :=          <errorid><machid>

<white>         :=          ('|0x0b)$n ($n => repeat 0 or more times)
<machid>        :=          <integer><white>
<progid>        :=          <string><white>
<index>         :=          <integer><white>
<featid>        :=          <integer><white><integer><white> (High , low id number)
<wrkoffset>     :=          <'G54'><'G55'><'G56'><'G57'><'G58'><'G59'>
<probeid>       :=          <string><white>
<tipid>         :=          <string><white>
<x>             :=          <numberfield>
<y>             :=          <numberfield>
<z>             :=          <numberfield>
<a>             :=          <numberfield>
<b>             :=          <numberfield>
<c>             :=          <numberfield>
<offsetx>       :=          <numberfield>
<offsety>       :=          <numberfield>
<offsetz>       :=          <numberfield>
<effballr>      :=          <numberfield>
<errorid>       :=          <pnf>|<unexphit>|<machine_err>
<units>         :=          <'I' | 'M'>

<integer>       :=          <digit>$k ($k => repeate 1 or more times)
<string>        :=          <'>(<alphanumeric>$k)<'>
<numberfield>  :=          (<digit>$n)<white> | (<digit>$n)<'.'>(<digit>$k)<white>

```

<vectorfield> :=	<numberfield> where the vector is normalized to $\ vec\ = 1$
<pnf> :=	<'91'><white>
<unexphit> :=	<'92'><white>
<machine_err>:=	<'93'><white>
<units_mismatch> :=	<'95'><white>
<digit> :=	<'0'> <'1'> <'2'> <'3'> <'4'> <'5'> <'6'> <'7'> <'8'> <'9'>
<alphanumeric> :=	all iso printable ascii characters including white space